

Remarks

In view of the above amendments and the following remarks, favorable reconsideration of the outstanding office action is respectfully requested.

Claims 1, 3, 5-17, 19-20, and 22-25 remain in this application. Claims 1, 3, 6, 14, 17, 19, and 22 have been amended. Claims 2, 4, 18, and 21 have been cancelled. Claims 26-57 have previously been withdrawn from consideration, without prejudice. Amended claim 1 now contains the limitations of cancelled claims 2, 18, and 21. Support for added material in amended claim 1 can be found in the specification (See Specification, p 10, paragraph [0032]).

The present invention relates to a novel *glass* particle used as a label with the capability of enhancing detection of biomolecules and biomolecular interactions. Glass particles provide significant advantages over currently milled microparticles. The unique coding of the glass particles proves superior in the enhanced sensitivity of the detection assay. The improved invention includes a glass particle, specifically designed to be utilized in conventional detection methods, coded with a rare earth element(s) adapted to identify an attached biomolecule.

1. Allowed Claims/Subject Matter

Applicants note with appreciation the Examiner's indication that, provided the §112 issues are properly addressed, the subject matter of claims 5-15 and 19-25 are patentable and would be allowable if rewritten in proper form.

2. § 112 Rejections

The Examiner has rejected claims 2, 3, 6-25 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, claims 2 and 23 were rejected for reciting abbreviations such as "Ce, Pr, Nd, Sm, etc. . ." which Examiner asserts may have more than one meaning. Amended claim 1 now includes the limitation of claim 2. One of ordinary skill in the art would readily realize that applicants are reciting well established and accepted chemical abbreviations from the Periodic Table of the Elements, specifically "rare earth elements" as recited in the specification (see Specification p. 3, paragraph [0009], ln 2-4).

The Examiner has rejected claim 3 as being indefinite for reciting the term "adapted to." However, since claim 3 does not contain this language, it is understood that the Examiner intended to refer to claim 4 that does recite the term "adapted to." Claim 4 has been cancelled, rendering this objection moot.

The Examiner has rejected claim 6 as being vague. The Examiner asserts that it is unclear as to how the particle "includes" a cross-section of a fiber or an array of layers. Applicants have amended claim 6 to make clear that the particle "is a fiber having a cross-section."

The Examiner has rejected claim 19 since "the layers" lack antecedent support. Claim 19 has been amended to now depend from claim 6 and therefore the term "the layers" has proper antecedent basis.

3. § 102 Rejections

The Examiner has rejected claims 1, 2, and 4 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,262,365 (Oyobe). Applicants respectfully submit that amended independent claim 1, generally incorporating limitations from original claims 1, 2, 18, and 21, is patentable over Oyobe. The claimed invention as recited in amended independent Claim 1 follows:

1. A detectable label comprising a glass particle doped with at least one rare earth element, the glass particle further providing a unique identification code adapted to identify a functional group attached thereto, wherein the functional group is selected from the group consisting of a nucleic acid, an antibody, a protein, and an enzyme, and wherein the rare earth element is selected from the group consisting of Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, U, and combinations thereof, and

whereby the particle has a diameter of between 10 microns and 100 microns.

The teachings of Oyobe differ significantly from the present invention as recited in amended claim 1. The amended independent claim 1 requires a glass particle providing a unique identification code adapted to identify a functional group attached thereto. Oyobe fails to

teach or suggest a doped glass particle used as a unique identification code, not that the unique identification code be adapted to identify a functional group attached thereto as required by the amended claim 1. Instead, Oyobe teaches a silica glass co-doped with both aluminum and fluorine as well as a rare earth element. The rare earth dopant is employed by Oyobe to reduce the prospect of crystallization while still allowing for light emission characteristics that make the glass suitable for functional optical fibers and light waveguides (col. 5, ln 35-49); Oyobe's rare earth dopant is not used in any way for identification purposes. The Oyobe patent must, in order to anticipate the present invention, contain each and every limitation disclosed by the claim. Since the Oyobe patent does not include the aforementioned limitations, it cannot anticipate amended claim 1, or any claim dependent on amended claim 1.

The Examiner has rejected claims 1-4 and 16-18 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,159,686 (Kardos). Amended independent claim 1 requires the label be a glass particle "whereby the particle has a diameter of between 10 microns and 100 microns." Kardos fails to teach a particle having a diameter in the claimed range. Instead, Kardos teaches a submicron-size particle (col 10, ln 30-32). The Kardos patent must, in order to anticipate the present invention, contain each and every limitation disclosed by the claim. Since the Kardos patent does not include the size limitation referenced above, it cannot anticipate amended claim 1, or any claim dependent on amended claim 1.

4. Conclusion

Based upon the above amendments, remarks, and papers of record, Applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicants have cancelled claims 2, 4, 18, 21, and respectfully request reconsideration of the pending claims 1, 3, 5-17, 19-20, 22-25 and a prompt Notice of Allowance thereon.

Applicant believes that a one month extension of time is necessary to make this Response timely. Should Applicant be in error, Applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

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Respectfully submitted,

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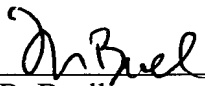
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